13. ABOUT INFORMATION SYSTEMS AS A KEY FOR THE SUSTAINABILITY STRATEGY. A CASE ON ENERGY EFFICIENCY OF UPC BUILDINGS

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1. Introduction

Definition of strategies and pathways towards sustainable models of resources use requires trustworthy and dynamic support of information. Without good information to start from it is impossible to establish diagnostics, to fix objectives, and in the future to evaluate its fulfilment and to reframe the defined strategies.

Information as simple registration and compilation of data is useless if it is not possible to analyze it in a suitable form. This requires it to be integrated in a structure that allows comparing historical data with value trends and standards in order to define behaviour models and to predict future evolutions. When energy efficiency targets are raised it is fundamental to have information systems that bring data with respect to, in one side, the needs to cover, and in the other, the resources that are used for it. This is the only manner to evaluate whether the system can be optimised or not.

2. UPC experience and SIRENA System

UPC is currently working on the implementation of an information system for energy and water resources (called "SIRENA"), based on a recent PhD work ("About the environmental impact of buildings: Analysis of buildings use incidence in the energy consumption"[1]), which used the university buildings as the research field. This work focused on the analysis of the energy efficiency by analysing the effect of various factors on the consumption. The developed methodology gave a central role to the information gathered about the building characteristics, their actual use and energy consumption. This information was classified in two types. On one side, 'static' information, related to architectural characteristics, use typology, energy sources and devices used.

On the other side, 'dynamic' information related to the use follow-up and the energy consumption (on-line registers).

From the results obtained, and based on the analysis of the data collected, it was possible to identify the factors that determine the consumption and their relative weight for each building category. Among the conclusions of this work, the authors underline the need of integrating a dynamic information system for monitoring the resources consumption of the buildings of the organization (the university in this

particular case). This allows an easy and permanent assessment and converts it into a basic tool for targets definition and energy efficiency policy implementation.

This research project has inspired the current information system (Fig. 1), a platform that integrates today various types of energy and water information related to UPC campuses buildings, and aims to go further and include other kinds of information relevant to sustainability. Up to now, this system is not only used for management purposes but also for research and educational matters also.

Figure 1. Two screens of the SIRENA system (http://www.upc.edu/sirena)

References

[1] Lopez Plazas, Fabian (2006) “About the environmental impact of buildings: Analysis of buildings use incidence in the energy consumption”. PhD thesis, ETSAV, UPC (unpublished)